

March 7, 1871.

Professor Flower, F.R.S., V.P., in the Chair.

The following papers were read :—

1. Notes on rare or little-known Animals now or lately living in the Society's Gardens. By P. L. SCLATER, M.A., Ph.D., F.R.S., Secretary to the Society.—Part I. Mammalia.

[Received February 17, 1871.]

(Plates XIV.—XVII.)

In preparing for publication a fifth edition of the list of vertebrated animals in the Society's Gardens, on which I am now engaged, I have found it necessary to make researches into the history of some of the rarer and less-known species that have been represented in the Menagerie during the past ten years, and I beg leave to offer to the Society some remarks upon them.

The present part of my communication will relate mainly to the *Quadrumana*, of which the Society's collection is always large, and frequently embraces doubtful specimens, only to be determined accurately after their decease. But I propose to continue my notes through the entire series of Vertebrates, devoting special attention to such species as have been described as new to science from specimens living in the Society's Gardens.

1. *MACACUS LASIOTUS*, Gray, P. Z. S. 1868, p. 60, pl. vi.; Cat. of Monkeys (1870), p. 129.

The death of the typical specimen of this Macaque (which took place on the 25th May, 1870) has enabled us to decide the question whether, as Mr. Bartlett and I have always suspected, the animal had not been mutilated by the removal of its tail. There can be no longer any doubt on this point. On examination of the pelvis and vertebral column, which I now exhibit, it will be seen that the whole of the caudal appendage below the third caudal vertebra has been removed by severance through the middle of the fourth vertebra, and that the divided bone has ossified over.

It is, therefore, quite manifest that this Macaque has nothing whatever to do with the short-tailed group of *Macacus*, as its describer, who considered the want of the tail as "*evidently a natural deficiency*," has suggested, but is simply, what it looks so very much like, one of the *Rhesus* group with its tail cut off.

On comparing the skin with the specimens of *Macacus rhesus* in the British Museum, I find it different mainly in its larger size, more hairy ears, and the deep rufous terminations of the hairs of the back and flanks. In the last respect it is perhaps more like the typical specimen of *M. pelops* of the Himalayas. But if, as we believe, the

so-called *M. lasiotus* was really brought from Szechuen, in inner China*, it would hardly be expected that it should be quite identical with *M. rhesus* of India. *M. lasiotus* may therefore remain in our catalogues as the designation of one of the Chinese forms of *M. rhesus*, until further opportunities occur of ascertaining whether the above-mentioned differences are constant and of sufficient importance to warrant specific rank.

It must, at the same time, be recollected that there are already two species of *Rhesus*-like Monkeys from China established—namely, *M. cyclopis*, Swinhoe†, from Formosa, and *Inuus sancti-johannis*, Swinhoe‡, from some small islands near Hong-Kong. Besides these, Mr. Swinhoe has also obtained what he considers to be a true *M. rhesus* from Hainan§. My own opinion is, that none of these supposed species, any more than *M. lasiotus*, are yet proved to be really well established as specifically distinct from *M. rhesus*.

2. *MACACUS ASSAMENSIS*.

By reference to the original specimen of *M. problematicus*, Gray (Cat. Monkeys, p. 128), now in the British Museum, I have ascertained that this species of Dr. Gray was founded on the Monkey deposited in our Gardens, Nov. 9th, 1868, by Major C. Richards, having been brought from Dalamecote Fort, Bhootan. In my previous note on this animal (P. Z. S. 1868, p. 566) I referred it to *M. assamensis* of M'Clelland, and I see no reason to doubt that this identification is correct. But it is of course desirable that reference should be made to the original of *M. assamensis*, which is still, as I have been informed, on application to the proper authorities for that purpose, boxed up in the cellars of the new Indian Office.

Dr. Gray (Cat. of Monkeys, p. 31) refers *M. assamensis* to a Siamese form of *M. cynomolgus*, "like *M. cynomolgus*, but pale grey, without any red shade," and with the "tail longer than the body." But this is certainly wrong, as M'Clelland says of his *M. assamensis* (P. Z. S. 1839, p. 148) "*cauda partem tertiam longitudinis totius superante.*" There can, I think, be no question that M'Clelland's *Macacus assamensis* belongs to the *Rhesus* group of Macaques, as is also supposed by Jerdon (Mamm. India, p. 11), and that it is, in all probability, the same as the so-called *M. problematicus*.

Dr. Gray quotes "Assam Monkey, Bartlett, Land and Water, 1869," as a synonym of his *M. problematicus*. The point is not of great importance; but I may state that I can find no such reference in 'Land and Water,' and that Mr. Bartlett altogether denies all knowledge of ever having given it such a name.

3. *MACACUS MAURUS*.

The first example we received of this Monkey was purchased in August 1860, and was referred by me, in a notice of some rare *Quadrumana* then living in the Gardens||, to *Macacus maurus* of F. Cuvier

* See P. Z. S. 1868, p. 61.

† P. Z. S. 1862, p. 350, tab. 42.

‡ P. Z. S. 1866, p. 556.

§ P. Z. S. 1870, p. 226.

|| Proc. Zool. Soc. 1860, p. 420.

(H. N. d. Mamm. pl. 45). When we received a second example in 1866 (Feb. 21), Dr. Gray described and figured it as a new species under the name *M. inornatus* (P. Z. S. 1866, p. 202, pl. xix.). But I see no reason to change my former determination. The figure in the 'Histoire Naturelle des Mammifères,' although stated to have been taken from a drawing*, agrees in nearly every respect with our specimen.

In August last Mr. W. Jamrach deposited in the Society's Gardens three Monkeys of this species, along with two of *M. ocreatus* and six of the so-called *Cynopithecus niger*. On the 1st of January of the present year we purchased two of these animals, which are still living in the Gardens.

It is unfortunate that we do not yet with certainty know the exact locality of this Macaque. But I think it is probably Borneo, as already conjectured by Dr. Gray.

This Macaque is of exactly the same form as *M. ocreatus* (figured P. Z. S. 1860, Mamm. pl. lxxxii.); and the young animals of the two species are so much alike, that one of Mr. Jamrach's specimens, supposed when it was deposited to be *M. maurus*, has since turned out to be *M. ocreatus*.

4. *ATELES GRISESCENS*, Gray, P. Z. S. 1865, p. 732; Cat. of Monkeys, p. 42.

Dr. Gray founded this species of *Ateles* upon a specimen that was living in our Gardens in 1864. It was brought home by Mr. E. Greey, F.Z.S. (who was at that time an officer in the West-Indian Mail Company's Steam-ship 'Shannon'), on the 29th Oct., 1864. Referring to Mr. Greey's letters, I regret to find that he did not know the exact locality of it, but only states that it was obtained by him at St. Thomas's, and had already been three years in captivity, so that it was quite adult.

In 1869 (Oct. 12) we purchased of a London dealer a somewhat similar specimen, which died twenty-six days afterwards. It was a young half-grown male. I have compared its skin (which I now exhibit) with the typical specimen of *A. griseus*, now in the British Museum, and believe them to be probably identical. The young animal is, as might be expected, rather lighter in colour, particularly below, but above exhibits the same mixture of black and greyish hairs as in the original. The tail is nearly black above, with a light line of greyish hairs below. The length of the body is 14 inches, of the tail 16 inches. There is no rudiment of a thumb apparent.

It is possible this may be a good species, and still turn up in some part of the Central American or the Columbian coast, whence Mr. Greey's specimen probably came; but I do not yet consider it sufficiently well established.

5. *ATELES CUCULLATUS*. (Plate XIV.)

Ateles cucullatus, Gray, P. Z. S. 1865, p. 733; Cat. of Monkeys, p. 42; Murie, P. Z. S. 1865, p. 739.

* Is. Geoffroy, Cat. de Mamm. p. 31.

On the 30th of June, 1865, we purchased of a dealer in Liverpool the only example I have ever met with of this very singular species—easily known from every other member of the genus I am acquainted with by the long thin hairs of the body, and in particular of the head, as described by Dr. Gray. Our specimen was an adult male.

The animal died in the August following, and Dr. Murie contributed to the 'Proceedings' some further notes on its external appearance, and an account of its anatomy. Dr. Murie has given accurate measurements of the typical specimen (which are altogether omitted in Dr. Gray's description), and also describes the colour of the face and adjoining parts, but has omitted to note that there is a small tubercle representing the thumb in this species.

The accompanying drawing (Plate XIV.), which may serve to render this Spider Monkey more easily recognizable, has been taken by Mr. Smit from the typical specimen, which is now in the British Museum.

It is much to be regretted that we do not know the true *patria* of this *Ateles*; but I have some reason to suppose it may be from the northern coast of Columbia, as I am told that a black Spider Monkey with long hair over its head is occasionally brought for sale into Cartagena.

6. ATELES VARIEGATUS, Wagner.

In July last we received from the Hon. A. Gordon a young female Spider Monkey, which I was at first inclined to refer to *A. belzebuth* of Geoffroy*, but which having died, and having been acquired by the British Museum, was described by Dr. Gray as the female of his *A. bartletti*†.

In my remarks on this specimen (P. Z. S. 1870, p. 668, and Ann. N. H. ser. 4, vol. vi. p. 472) I have given my reasons for considering *A. bartletti*, Gray, to be a synonym of *A. variegatus*, Wagner.

In his reply to my remarks (Ann. N. H. ser. 4, vol. vi. p. 18) Dr. Gray says that he does "not think I have proved my case." In order to do this, therefore, more completely, I accepted the kind offer of Herr. v. Pelzeln to send me one of the typical specimens of *A. variegatus* in exchange from the Imperial Cabinet of Vienna, and thus convinced myself and other persons interested in the question that my views were correct‡.

* Cf. P. Z. S. 1870, p. 668.

† Ann. Nat. Hist. ser. 4, vol. vi. p. 428.

‡ See *antèa*, p. 39. As regards some remarks of Dr. Gray (Ann. Nat. Hist. Feb. 1871) on the notice of the exhibition of this specimen as given in our printed minutes, I may be permitted to observe:—(1) What I exhibited was not the typical specimen of *A. variegatus*, but a typical specimen, *i. e.* one of Natterer's original examples, of which he altogether obtained five. (2) This was received by me in exchange from the Imperial Cabinet of Vienna, not loaned to me by the Museum of Munich, as Dr. Gray assumes, *l. c.* p. 164. (3) The name *variegatus* was not published only in a "miserable compilation," as Dr. Gray calls Reichenbach's work (Ann. Nat. Hist. Jan. 1871, p. 18), but, as shown by the synonyms given below, in the 'Transactions' of the Bavarian Academy of Sciences and in other well-known works.



J Smit lith.

♂
ATELES CUCULLATUS

M & N Harhart imp.



I have now taken the typical specimen of *A. variegatus* to the British Museum, and compared it with the type of *A. bartletti* and with the specimen obtained from Mr. Gordon. The conclusion I have arrived at is that all three specimens are referable to one species. As to the two first there can, I think, be no doubt whatever, as they agree in every particular except in the smaller size and fainter tinge of the colour below in the Nattererian specimen, which is just what we should expect to find in the female. Mr. Gordon's example is still paler below, and shows no signs of the white stripe on the sides of the face. But there is a slight indication of the frontal spot, and the character of the hair on the head agrees completely with that of the other two specimens.

On the whole, therefore, I believe that Dr. Gray was correct in referring Mr. Gordon's specimen to his *A. bartletti* (i. e. *A. variegatus*).

In a recent article on the Mammals of Costa Rica*, Dr. A. von Frantzius states that a number of skins of an *Ateles*, collected by him in Costa Rica and sent to the Berlin Museum, were determined by Dr. Peters to be *A. variegatus*. This appeared to me to be such an extraordinary locality for the present species that I wrote to Dr. Peters to inquire on the subject. Dr. Peters informed me that Dr. v. Frantzius had made a mistake, and that the only skins of *Ateles* received from Costa Rica by the Berlin Museum were, in his opinion, referable to *A. frontatus* (Gray), i. e. *A. melanochir*†.

Dr. Slack, in his article on the prehensile-tailed *Quadrupana*‡, has likewise confounded *Ateles variegatus* with *A. melanochir*, describing *A. variegatus* as the male, and *A. melanochir* as the female of the same species! But the plate in Reichenbach's Atlas (Nat. d. Affen, pl. x. fig. 154), which is referred by Dr. Slack and Dr. Gray to *A. melanochir*, although not very good, as well as the description (p. 62), are both clearly intended for *A. variegatus*; indeed Reichenbach tells us that they were taken from the typical specimens of that species in the Vienna Museum.

The synonyms of *Ateles variegatus* will therefore stand as follows :—

ATELES VARIEGATUS.

Ateles variegatus, Wagner, Säugeth. i. p. 313 (1840); *ej.* Abh. Acad. Münch. v. p. 420 (1847); *ej.* Säugeth. v. p. 78 (1855); Reichenbach, Affen, p. 62, pl. x. fig. 154; Sclater, Ann. Nat. Hist. ser. 4, vol. vi. p. 472; *ej.* P. Z. S. 1870, p. 668, 1871, p. 39.

Sapajou geoffroii ♂, Slack, Proc. Ac. Sc. Phil. 1862, p. 511.

Ateles bartletti, Gray, P. Z. S. 1867, p. 992, pl. xlvii. (♂); *ej.* Ann. Nat. Hist. ser. 4, vol. vi. p. 428 (♀ jr.).

* Arch. f. Nat. 1869, pt. 1, p. 257.

† Dr. v. Frantzius must likewise have made some strange mistake when he speaks of an *Eriodes frontatus*, Gray, from Costa Rica (*l. s. c.* p. 258). The genus *Eriodes* is, I believe, restricted to the wood-region of S.E. Brazil; and *Brachyteles frontatus*, Gray, is certainly a true *Ateles*.

‡ Proc. Acad. Sc. Phil. 1862, p. 511.

Diagn.—*A. corporis pilis elongatis et mollibus; capillitio frontali antrorsum projecto, tripartito: supra ater; macula frontis ferruginea, facie nigra pilis albis utrinque limbata: gastræo, artuum latere interno, tibiis antebrachiisque extus et cauda subtus ferrugineo-ochraceis: long. corp. 24, caudæ 29 poll. Angl. Fœm. mari similis, sed minor et colore subtus fulvescente griseo.*

Hab. Eastern Peru, near Chyavetos (*Bartlett*); Upper Rio Negro, Serra de Cocoi (*Natterer*); Upper Caura river, Venezuela (*Gordon*).

7. ATELES MELANOCHIR. (Plate XV.)

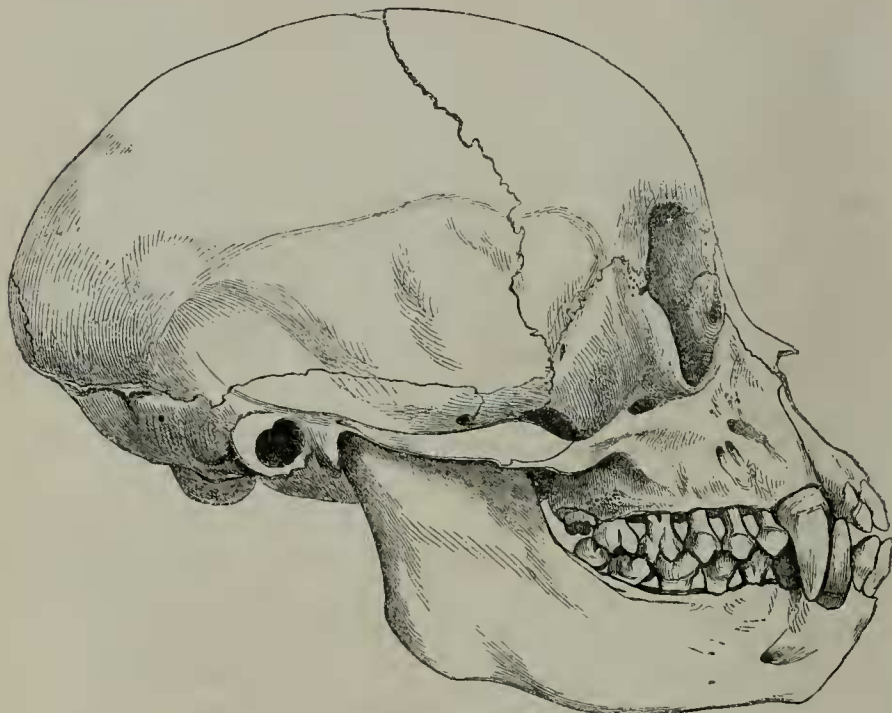
Ateles melano chir, Desm. Mamm. p. 76.

Ateles geoffroii, Kuhl, Beitr. p. 26.

Atèle melano chér, F. Cuv. Mamm. vol. i. pl. 66.

Ateles melano chir et *A. ornatus*, Gray, Cat. Monkeys (1870), pp. 43, 44.

Fig. 1.



Skull of *Ateles melano chir* (natural size).

I have already spoken (P. Z. S. 1870, p. 797) of the fact of our having received from Nicaragua a second example of Dr. Gray's *A. ornatus*, which has since been described in his new catalogue of Monkeys. Although, now that I have had the opportunity of examining this animal, I have little doubt that it is merely a variety of



J. Smil

ATELES MELANOCHIR.

MANHART imp



A. melanochir, of which, as stated above, an example arrived in company with it, I think it desirable to give a figure of it. We are now well acquainted with the true *patria* of this form, as the present example was purchased of one of the officers of the R. W. I. Mail Co., who brought it from Greytown, Nicaragua.

Upon referring to the specimen in the British Museum upon which *A. ornatus* was established, I find that that was also received from this Society in 1850.

The specimen of this *Ateles* which we received on October 14th, 1870, died November 13th; and I now exhibit its stuffed skin and skull. It was a male, not adult, the last upper molars just coming up (see fig. 1, p. 226). There are no traces of a rudimentary thumb. The hair of the forehead is reflexed, meeting that of the crown about an inch above the eyes. The hands and feet and the end of the tail above are black, the black extending over the outsides of the thighs, and somewhat also over the shoulders; the lower back above flanks and belly are rusty red, which colour extends over the back of the thighs and base of the tail below, and renders the species easily recognizable, as far as colour goes.

The whole length of body is 17 inches, of tail 21 inches.

This specimen has been sold to the Trustees of the British Museum.

8. *CEBUS LUNATUS*.

Cebus lunatus, F. Cuv. Hist. Nat. d. Mamm. pl. 70.

Cebus leucogenys, Gray, P. Z. S. 1865, p. 824, pl. xlv.; Cat. of Monkeys, p. 48.

This species was established by Dr. Gray upon a *Cebus* which was living in our Gardens in 1861. About this specimen, I regret to say, I can discover no particulars, as it was never discriminated from several other Capuchin Monkeys which were in the Society's Gardens at the same period.

As far as I can tell from Dr. Gray's figure and very short description, this *Cebus* does not differ materially from the *Sajou cornu*, *mâle*, of F. Cuvier, Mamm. pl. 70 (*Cebus lunatus* of the table of plates), which is usually regarded as the adult of *Cebus apella* sive *fatuellus**. If really different, *lunatus* would, in my opinion, be a prior name for it.

9. *PITHECIA LEUCOCEPHALA*.

I have already (P. Z. S. 1866, p. 305) stated the circumstances under which the only example of this Saki which I have ever seen alive came into our possession. It died on the 26th of June, 1865, and was purchased by the British Museum.

In Dr. Gray's Catalogue of Monkeys, with this species is united *P. chrysocephala* of I. Geoffroy St.-Hilaire, of which *P. leucocephala* is regarded as the female. But our *P. leucocephala* was an adult male, as determined by Dr. Murie. Moreover, from the examination of a large series of specimens of this Saki obtained by Natterer

* Cf. Burmeister, Abh. Ak. Halle, 1854, p. 92, and Wagner, Säugeth. v. p. 84.

on the Rio Negro and Rio Branco, Wagner has shown that *P. rufiventer*, Geoffr. (Gray Cat. Monkeys, p. 60), is really the female of *P. leucocephala* *.

My own opinion is that Wagner, although somewhat prone to unite species, can hardly have been mistaken on this point. I am therefore inclined to regard it as possible that *P. chrysocephala* may be the male of a closely allied but distinct species, probably occupying a different geographical district. It seems to differ from *P. leucocephala* not only in its yellow head, but in the narrow black line which parts the middle of the forehead. The specimen in the British Museum was purchased at Stevens's sale-rooms in 1842, and was said to have been received from the "Rio Negro."

10. PITHECIA SATANAS.

In March 1864 we purchased a young female American Monkey from a London dealer, along with a lot of other animals received, I believe, from Pará. I was inclined to think it might be the young of *Pithecia satanas* (Hoffm.), and gave notices of it in the Society's 'Proceedings' under that name (1864, pp. 138, 712), and a figure (plate xli.). The specimen died, and is now in the British Museum.

On the 30th of March 1868, we purchased of another dealer a second young example of the same Monkey, which I also recorded as *P. satanas* (?). This animal died November 14th of the same year, and is likewise now in the British Museum.

Upon these two examples Dr. Gray has established a new species, his *Chiropotes ater*, Cat. Monkeys (1870), p. 61.

I have recently reexamined these specimens in the British Museum, and, after comparison of them with the other specimens in that collection, have found no reason to alter my determination. The condition of the skulls shows that the animals were both quite immature.

There seem to be two nearly allied species of this form of *Pithecia*:—

(1) PITHECIA CHIROPOTES (Humb.).

Simia chiropotes, Humb. Obs. Zool. i. p. 312.

Simia sagulata, Traill.

Brachyurus israëlitæ, Spix.

Pithecia chiropotes, Geoffr. et auctt.

Diagn.—*Major* : *nigra* : *dorso castaneo* : *barba maris adulti intricassata maxima*.

Hab. Upper Orinoco (*Humb.*); Rio Negro (*Spix*); British Guiana (*Schomb.*); Rio Branco (*Natt.*).

(2) PITHECIA SATANAS (Hoffm.).

Simia satanas, Hoffm.; Humb. Obs. Zool. i. p. 315, tab. xxvii.

Chiropotes couxio, Less.

* Cf. Wagner, Abh. Ak. Münch. v. p. 436, et Säugeth. v. p. 97.

Pithecia satanas, Geoffr. et auctt.

Saki noir, F. Cuv. Hist. des Mamm. pl. 78.

Diagn.—*Minor: nigra: dorso interdum fusco lavato: barba minus crassa.*

Hab. Lower Amazon, near Pará (*Hoffm. et Natt.*); ~~British-Guiana (Schomb.)~~

Wagner (Abh. Ak. München, v. p. 433, and Säugeth. v. p. 102) proposes to unite these two species, as being mere varieties. Dr. Gray, on the other hand, has made *three* species out of them. But, even if the latter view be adopted, our two specimens above mentioned must be referred to the true *P. satanas* (*Hoffm.*), which is the black form from Pará.

Of *P. chiropotes* we have within the last ten years likewise acquired two living specimens. Both were purchased of Mr. E. Greey (one on the 18th of November, 1865, and the other on the 15th October, 1866), and were, I believe, from Guiana. The latter is noticed P. Z. S. 1866, p. 418, as *P. satanas*, as I was not then convinced of the specific difference of the two forms.

The plate 78 of the 'Hist. Nat. des Mammitères' (*Saki noir*) undoubtedly represents Dr. Gray's *Chiripotes ater*, or, as I consider it, the young of *P. satanas*. M. F. Cuvier in his letterpress refers the plate to *P. satanas*, but observes upon the absence of the beard figured in Humboldt's plate; but this is no doubt due to the youth of the specimens. Both our living examples were quite young, as is evidenced by their skulls, which are now in the British Museum.

11. HAPALE CHRYSOLEUCOS.

I have already shown that *Mico sericeus* (Gray, P. Z. S. 1868, p. 256, tab. 24), founded on an animal living in our Gardens in 1868, is the *Hapale chrysoleucos* of Wagner (P. Z. S. 1868, p. 592). Dr. Gray, however, has more recently made it the type of a new genus, *Micoella*, and has arranged *H. chrysoleucos* in this new genus as a second species (see Cat. Monkeys, p. 131). Dr. Gray gives the *habitat* of his *Micoella sericeus*, as "Brazil (*Natterer*)," whereas the only specimen of this species in the British Museum is that which was living in our Gardens in 1868, long after *Natterer's* decease.

12. LEMUR MACACO.

Male.

The black Maucanco, Edwards, Gleanings, v. p. 217.

Lemur macaco, Linn. S. N. i. p. 44.

Lemur niger, Geoffr. Ann. d. Mus. xix. p. 159; Peters, Reise n. Mozamb. i. p. 21.

Varecia nigra, Gray, P. Z. S. 1863, p. 136.

Lemur macaco, var β , Van der Hoeven, Tijdschr. xi. p. 32.

Female.

Lemur lencomystax, Bartl. P. Z. S. 1862, p. 347, pl. xli.

Varecia leucomystax, Gray, P. Z. S. 1863, p. 136.

Male and Female.

Lemur macaco, Schlegel, Ned. Tijdsch. iii. p. 67; Schl. et Poll. Faune de Mad. p. 1, pl. i.

Lemur niger, Sclater, P. Z. S. 1866, p. 1; Cat. of Vert. ed. iv. p. 12.

In his new Catalogue of Monkeys, Dr. Gray has reunited this species, of which both sexes are now well known to us, to the *Lemur varius* of Geoffroy, as Wagner (Säugeth. v. p. 142) and others have done before him. But there can be no doubt that, as already pointed out by Professor Schlegel*, the two species are quite distinct. Besides the differences noted by Professor Schlegel, the voice of *Lemur varius* is very loud, harsh, and powerful. Mr. Bartlett tells me he has heard it at least a mile off. But *Lemur macaco* has only a coarse grunting call-note, similar to that of most of the smaller *Lemures*. Within these last ten years we have had two of the former and four of the latter alive in the Gardens, and thus have had ample opportunities of observing them. Besides, as our last specimen of *Lemur varius* was a female, we know that in this species the sexes are nearly alike. In *Lemur macaco* (sive *niger*) they are quite different.

13. LEMUR MONGOZ. (Plate XVI.)

Just as was the case with the last-named species, I believe that, with Mr. Bartlett's excellent assistance, I have discovered, by observation of the living animals, that two Lemurs heretofore regarded as quite distinct are really male and female of the same species, to which the earliest name applicable appears to be *Lemur mongoz* of Linnæus, founded on the "Mongooz" of Edwards (Gleanings, i. p. 12, t. 216). The females of this Lemur have been hitherto called in our Gardens Black-fronted Lemurs (*Lemur nigrifrons*), being, as I believe, the *Lemur nigrifrons* of Geoffroy (Ann. d. Mus. xix. p. 169), but not of F. Cuvier (Mamm. pl. 92 †). The males have been called the Yellow-cheeked Lemur (*Lemur xanthomystax*), but, no doubt, incorrectly, for the Lemur described and figured under that name by Dr. Gray (P. Z. S. 1863, p. 138, pl. xviii.) seems to be different. But the female is certainly the animal figured by F. Cuvier (Mamm. pl. 93) as "*Le Maki à gorge blanche, femelle—Lemur dubius.*"

All the "Yellow-cheeked Lemurs" we have had in the Gardens have, as far as I can ascertain, been males, and all the "Black-fronted" females. On May 29th, 1857, we purchased a Black-fronted Lemur. This bred in 1865 with a male "Yellow-cheeked" Lemur, and produced a young one—a male, like its male parent. This was

* "Ce Lémur présente, et plus particulièrement par les longs poils garnissant les oreilles, de l'affinité avec *Lemur varius*, Geoffroy—espèce que les naturalistes, successeurs de Linné, ont l'habitude de désigner sous l'épithète de *L. macaco*. Mais ce véritable *macaco* s'éloigne constamment du *L. varius* par sa gorge velue, un système de coloration assez différent, une taille moins forte et un pelage beaucoup moins fourni, moins touffu, et moins laineux." (Schlegel, Ned. Tijdschr. iii. p. 78.)

† Cf. Van der Hoeven, Tijdsch. xi. p. 35.



Enst lith

M & N Hanhart imp.

LEMUR MONGOZ ♂ ET ♀



supposed at the time to be a hybrid, and was registered* as such in our books; but I have now little doubt that it was purely bred. It died in 1868.

In 1867 (July 17th), Mr. Bartlett bought for the Society four Lemurs, two Black-fronted and two Yellow-cheeked, which are all four still living in the Monkey-house. The former are females, and the latter males, and they always go together in pairs, and are considered by the keepers to be males and females of the same species.

I exhibit a drawing, prepared by Mr. Smit, of one of these pairs, and propose to rearrange the synonyms of the two sexes under the first-given name of *Lemur mongoz*, as follows:—

LEMUR MONGOZ. (Plate XVI. fig. 1 ♀, fig. 2 ♂.)

Male.

Lemur mongoz, Van der Hoeven, Tijdschr. xi. p. 34.

Lemur collaris, Geoffr. Ann. d. Mus. xix. p. 161; Wagner, Säugeth. v. p. 143; Is. Geoffr. Cat. de Mamm. p. 72.

Female.

The Mongooz, Edwards, Glean. v. p. 12, t. 216.

Lemur mongoz, Linn. S. N. p. 44; Fischer, Syn. Mamm. p. 75.

Lemur nigrifrons, Geoffr. Ann. d. M. xix. p. 160; Fischer, *ibid.* p. 77; Van der Hoeven, Tijdschr. xi. p. 35. Bennett, Gard. & Men. Z. S. i. p. 301.

Lemur dubius, F. Cuv. Mamm. pl. 93 (fig. exact).

Lemur mongoz, var. β, Wagner, Säugeth. v. p. 144.

Diagn.—♂ *griseo-brunneus*: *genis et collari flavescens*. ♀ *rufo-grisea, nucha humerisque canis*: *gula alba*: *fascia frontali nigra*: *facie albicante*.

It may be remarked in favour of this view that both the specimens of *Lemur collaris* in the Paris Museum are marked *males*, that F. Cuvier expressly states that his *Lemur dubius* is a female, and that Mr. Bennett (Gard. & Men. *l. s. c.*) states that both the Black-fronted Lemurs in the Society's Gardens in 1831 were females †. But after all I only submit this view as an hypothesis to be confirmed by subsequent investigation.

14. LEMUR BRUNNEUS, V. d. Hoeven.

Dr. Gray's type of *Prosimia melanocephala* (P. Z. S. 1863, p. 137, pl. 138) was received from the Society's collection in December 1855.

We have now in the Gardens a *female* Lemur, purchased July 23rd last, which appears to be of the same species.

I may add that I am inclined to think it will turn out to be the same as the *Maki à front noir*, *Lemur nigrifrons*, of F. Cuvier (Mamm. pl. 92), but not of Geoffroy, which Van der Hoeven has

* See P. Z. S. 1865, p. 860, and List of Vert. ed. iv. p. 13.

† Since these notes were read, I have examined the specimens of this Lemur in the gallery of the British Museum, and find the males marked *Lemur collaris* and the females *Lemur nigrifrons*.

called *Lemur brunneus*. Van der Hoeven's description (Tijdschr. v. N. G. xi. p. 35) seems quite applicable to it. I am therefore disposed to consider *Prosimia melanocephala* = *Lemur brunneus*.

15. LEMUR FLAVIFRONS.

This species was established by Dr. Gray in 1867 (P. Z. S. 1867, p. 596, pl. xxxi.), under the name *Prosimia flavifrons*, upon a Lemur then living in the Society's Gardens. It was purchased May 11, 1867, of a London dealer, and died Sept. 30th of the same year. It is now in the British Museum. Dr. Gray speaks of this animal as a *male*; but in our Prosector's books it is registered as an *adult female*.

We have now a second similar specimen in the Gardens, presented by Major R. Lloyd, June 12, 1868. This is certainly a *female*.

16. MELLIVORA LEUCONOTA, Sclater, P. Z. S. 1867, p. 98, pl. viii.

The specimen which I described provisionally under this name is still living in the Society's Gardens. It is now quite adult; and the lower back has become more greyish, while the crown remains of a nearly pure white. It could now hardly be distinguished from *M. indica*.

There being, I believe, no doubt of the African origin of this specimen, I am led to the conclusion that there is not really more than one valid species of this genus after all, which, like other Carnivora, extends from the Cape into the Indian peninsula.

Heuglin (Syst. Ueb. d. Säugeth. Nordost-Afr. in Sitz. Ak. Wien, liv. p. 563) notices *Mellivora* as met with in Southern Nubia, Cordofan, Eastern Sennaar, and Central Abyssinia, but refers the species to *M. capensis*.

17. URSUS NASUTUS, Sclater, P. Z. S. 1868, p. 73, pl. viii.

The bear which I provisionally described under this name, and which was stated to have been brought from the "West Indies," has recently died. It was in rather a diseased state, I regret to say, and neither skin nor bones were in a satisfactory condition.

However, I had the head carefully macerated, and have submitted the skull to the examination of Mr. Busk, our best authority on such subjects. Mr. Busk kindly informs me that he cannot detect any difference, as regards either skull or teeth, between it and *Ursus americanus*, of which he is inclined to consider it a mere variety.

Under these circumstances, I have placed this specimen in the new edition of the Catalogue of Vertebrates under *Ursus americanus*. I should also remark that I now find that a similar variation in the colour of a specimen of *Ursus americanus* has been already noticed in an individual living in the Menagerie at Chantilly, upon which Geoffroy founded his *Ursus gularis* (cf. F. Cuv. Mamm. sub tab. 217).

We have also now living in the Gardens a Black American Bear which presents faint traces of white on the chest.

18. *HYSTRIX CRISTATA*, Linn.

We have had in the Gardens of late years a considerable number of Porcupines of the group allied to *Hystrix cristata*, from Western and Southern Africa and from India. I have hitherto referred the Western-African specimens to *H. cristata*, the Southern-African to *H. africæ australis*, Peters, and the Indian specimens to *H. leucura*, Sykes. At the same time, I must observe that the task of distinguishing these species by external characters is by no means an easy one, and that, in the event of the animals getting together, it would not be always very easy to recognize them again.

At the present time we have in the Gardens two Porcupines from India, and one from Ceylon, which we refer to *H. leucura*. The two Indian specimens (both presented by Colonel Thomson, Aug. 25, 1865) * have very little white on the point of the crest, a line of white spines down the centre of the lower back, and the long quills of the back with long white terminations. These are just the characters attributed to the Indian Porcupine (*Hystrix leucura* sive *hirsutirostris*) by Mr. Waterhouse in his excellent 'History of Mammalia' (vol. ii. p. 454). The Ceylonese specimen (presented by Mr. Oswald Brodie in 1864) is very nearly similar, but has no white at all, or next to none, on the crest.

Of African Porcupines of the *H. cristata* group we have now two living examples. In one, said to be from West Africa (purchased May 1869), the crest is broadly ended with white, there is no mesial line of white spines on the back, and the white ends of the long quills of the back are much shorter, so that the quills are generally altogether blacker.

The second, presented by the Duke of Edinburgh in November 1860, and said to have been brought from the Cape Colony, generally resembles the West-African specimen, but is larger, and has a *white mesial line* of spines on the back, as in *H. leucura*. It has the crest broadly tipped with white as in the West-African specimen. This I suppose to be *Hystrix africæ-australis* of Peters (Reise n. Mos. Mamm. p. 170). At the same time I must confess that I am not very well satisfied with these determinations.

I do not intend for a moment to deny that the three species mentioned above may not be separated by external characters, as well as by their well-known cranial differences; but living Porcupines are not easy animals to examine, and in the many inspections I have made of our specimens I have not been able to make out any more positive characters by which to distinguish them.

In 1865, I described and figured in the Society's 'Proceedings' (p. 352, pl. xvi.), under a name previously given by Mr. Day, some examples of the "Orange-quilled Porcupine" of Malabar, which had then been recently received from Col. Sir W. T. Dennison. In my description of this supposed species I pointed out that, as regards its

* According to their labels. But this pair bred in 1866; and when the young pair were sold, Mr. Bartlett suspects that *one* of the old pair was sent away in error instead of one of the younger pair.

cranial characters, it agreed with *H. leucura* in the shape of the nasal and intermaxillary bones, but that there were some other minor differences which might be sufficient to confirm the species.

After being some time in the Gardens, our Orange-quilled Porcupines gradually lost the splendid orange-colour in their quills and became undistinguishable in external appearance from other Indian specimens. Under these circumstances, I cannot doubt that the colour of the quills is merely due to some local variation, probably to some particular food which they consume; and I have therefore reduced *Hystrix malabarica* to a synonym with *H. leucura* *.

19. *HYSTRIX LONGICAUDA*, Marsden.

Under the name *Acanthochærus* † *grotei* Dr. Gray described and figured in 1866 (P. Z. S. p. 306, pl. xxi.) a Porcupine then lately received by the Society from Mr. Arthur Grote, F.Z.S. Dr. Gray gives the locality of this animal as "India;" but upon application to the donor I ascertained that it had really been received from Malacca, having been procured for Mr. Grote from the jungles of that settlement by Capt. Maddison, of one of the Straits Mail Steamers ‡.

In 1868 (July 20) Mr. Grote presented us with a second specimen of the same Porcupine, obtained from the same locality as the former one. This, as well as the former, is still alive and doing well in the Society's Gardens.

In such a difficult group as the Porcupines it is prudent to examine specimens perfectly before making many remarks on them. I shall therefore, for the present, merely state that I consider the so-called *Acanthochærus grotei* to be the same as the Porcupine figured in Marsden's 'Sumatra' (pl. 13. p. 118) as *Hystrix longicauda*, and that it has other synonyms. The animals of the settlement of Malacca are well known to be mostly the same as those of Sumatra, so that it would be *primâ facie* probable that the Porcupines of the two countries would be identical. I am aware that *Hystrix longicauda* is considered by Blyth and Jerdon (Ind. Mamm. p. 221) to be the same as *Hystrix hodgsoni* of

* Dr. Jerdon (Mamm. of India, p. 218) follows Mr. Blyth in dividing the Crested Porcupines of India into two species, *H. leucura* and *H. bengalensis*, and refers *H. malabarica* to the latter, from information received from Mr. Blyth.

† As regards the genus *Acanthochærus*, it is sufficient to observe that the typical species of this genus (*A. bartletti*, Gray, P. Z. S. 1866, p. 310) is based upon a hybrid Porcupine bred in the Surrey Zoological Gardens between *H. javanica* and *H. cristata*. Dr. Gray had previously founded his *Acanthion flemingii* (P. Z. S. 1847, p. 103) upon another hybrid bred by the same pair of Porcupines. In his last paper on Porcupines (P. Z. S. 1861, p. 307), Dr. Gray states that he "thinks it probable" that there may have been some mistake in the account of the hybridism of these Porcupines which is most circumstantially given by Mr. Waterhouse, Hist. Mamm. ii. p. 307; but on referring to Mr. Bartlett, from whom Mr. Waterhouse derived his information, Mr. Bartlett assures me that at the period when he made the inquiries he was assisting Mr. Waterhouse in his work on the Rodents, and that he has no doubt whatever that the information he supplied was correct. It is important that this should be stated in order to save great trouble and perplexity to future workers on the Porcupines.

‡ See P. Z. S. 1866, p. 417.

Nepal and *H. javanica* of Java. I believe, however, that this is quite a mistake. The two latter species are certainly very closely allied ; but I have no reason to doubt Mr. Waterhouse's determination that they are different. But *H. longicauda* is apparently quite distinct from either of them, having a slightly elevated crest and being black and white instead of brown and yellow. The Sumatran black and white specimen in the Leyden Museum spoken of by Mr. Waterhouse (*l. c.* p. 46) is probably *H. longicauda*.

Fig. 2.

Shed spine of *Hystrix longicauda* (one-half the natural size).

I exhibit some shed spines of our *Hystrix longicauda*, which, it will be observed, are at once distinguishable from those of the *H. cristata* group by being white, with only one nearly central black ring. It will be noticed that in Marsden's figure of *H. longicauda* some few of the spines are doubly barred with black ; but this is, no doubt, attributable to artistic error.

I hope to be able to give further particulars concerning *Hystrix longicauda* whenever either of our specimens dies*.

* Since this was written, Mr. W. Marshall has kindly supplied me with the following note on the Porcupines of this form in the Leyden Museum:—

"In the Leyden Museum are examples of two species or races of *Hystrix* from the Southern Asiatic archipelago,—that is, *H. javanica*, and a *Hystrix*-form from Sumatra, under the Museum name *H. mülleri*, which is unquestionably the same as that which you call *H. longicauda*. S. Müller (*Verh. Nat. Geschied.* p. 36) has already spoken of the differences between these two races, of which one comes from Java, the other from Sumatra. In our Gallery here we have of *H. javanica* three stuffed examples, two skeletons, and three skulls ; of *H. longicauda* (under the MS. name *H. mülleri*, Temm.) we have one full-grown example from Sumatra, and a very young one in its first year from Borneo. A half-grown individual, which is marked *H. javanica*, without any locality, is certainly referable to *H. longicauda*. What v. d. Hoeven intended by *H. ecaudata* is not clear to me ; and his *H. torquata* is simply a synonym of *H. javanica*. The following table gives a comparison of the principal differences between the two allied species:—

	<i>H. javanica.</i>	<i>H. longicauda.</i>
Length of longest spines in back ...	120 ^{mm}	160–170 ^{mm}
Length of spines in the tail	52	69
Length of spines in upper back ...	32	53
Length of spines on the head	35	57
Colour of extremities of head-spines	Dark brown.	Dark greyish black.
Colour of spines on back	{ Yellowish orange, with a dark brown band. }	White, with a dark brown band.
Cervical band.....	{ Yellowish, well developed. }	White, subobsolete.

"In the skeleton and skull I can find no material differences between the

20. *ATHERURA FASCICULATA* (Shaw); Waterhouse, Mamm. ii. p. 470.

On the 18th of September, 1867, we obtained, by purchase, of the Jardin d'Acclimation of Paris, a single specimen of this species, said to have been received from Saigon. On the 14th of March last Dr. Jerdon brought home with him an example of the same species from Cherra Punji on the Khasya hills, and presented it to the Society. This specimen is now living in the "Small-Mammal House," in company with two of its African allies (*A. africana*), and serves to prove how very closely these two species resemble each other externally.

They are very nearly of the same size and form, and much alike in general appearance. But *A. fasciculata* has the long spines of the back terminated with white, and is generally brighter in colour. Likewise the spines on the flanks and lower belly round the anus are tipped with white. In *A. africana* they are black, but whitish at their bases.

21. *PHACOCÆRUS ÆLIANI*.

Phacochærus sclateri of Dr. Gray (Ann. Nat. Hist. ser. 4. vol. vi. p. 190) was founded upon the female *Ælian's* Wart-hog (*Phacochærus æliani*) now living in the Society's Gardens, apparently because the drawing of the head of this animal given in my notice of its arrival (P. Z. S. 1869, p. 276) does not quite agree with Rüppell's figure in his 'Zoological Atlas,' tab. 25. Dr. Gray became subsequently of opinion that this specimen might even be a *Sus* (*op. cit.* p. 263). I replied to these remarks in a subsequent number of the 'Annals' (vol. vi. p. 404), and only now refer to them in order to introduce a few additional remarks upon the distinctness of the two known species of *Phacochærus*.

The skeletons of the pair of *P. æthiopicus* that were purchased by the Society in 1850*, and lived so long in our gardens†, are now in the British Museum. On examining them I find no traces of upper incisors in either skull, but in both of them the lower jaws present alveoli of the two deciduous lower incisors.

I have likewise, with Mr. Bartlett's assistance, examined the mouths of the fine adult pair of *P. æthiopicus* now living in the Society's Gardens (presented by the Duke of Edinburgh in May 1866), and have found no perceptible traces of incisors either above or below.

In the spring of this year one of our correspondents deposited in the Society's Gardens four young examples of the same species. I

two species. The tail in *H. longicauda* is not longer; but the transverse processes are rather broader."

There can be no longer any doubt, therefore, that we have here a repetition of the frequent case of an animal found in Malacca, Sumatra, and Borneo, but replaced in Java by a distinct form.

* See P. Z. S. 1850, p. 78, pl. xvii.

† The male died June 22, 1862, the female December 16, 1859.

had all these caught, and examined their mouths, but could find no trace of incisors either above or below.

Of *P. æliani*, the adult female above spoken of, now in the Society's Gardens, has two well-formed incisors above and six below, just as the skull of the specimen obtained by Mr. Blanford in Abyssinia*, which is now in the British Museum.

In November last Mr. Jamrach had on sale four Ælian's Warthogs; and I sent Mr. C. Bartlett down to examine them, hoping to find a mate for our husbandless female. Mr. Bartlett reported to me that they were unfortunately all of the female sex; but having at my request taken the opportunity of examining their mouths, he found that all these four animals also had "two incisors in the upper jaw and six in the lower."

It appears, therefore, that in every specimen examined (eight of *P. æthiopicus* and five of *P. æliani*), the differences of dentition usually held to separate these two species correspond with the external characters, and that *P. æthiopicus* (usually so called) has no incisors above and two small deciduous incisors below, whereas *P. æliani* has two permanent incisors above and six below.

As regards the distribution of these two species, Wagner appears to be quite correct when he comes to the conclusion that *P. æthiopicus* is confined to the extreme south of Africa†. Our two pairs were both received from Natal. But *P. æliani* seems to be spread all over the continent, being met with in Abyssinia and East Africa generally (*Rüppell*), Cap Verd (*Buffon*), Ashantee (*Viv. Soc. Zool. Lond.*), Guinea coast (*Pel*), Caffraria (*Wahlberg*), and Mozambique (*Peters*).

I may add that there can be little doubt that *P. æliani* ought, according to the strict laws of priority, to be called *P. africanus*, being the *Sus africanus* of Gmelin (*S. N.* p. 220), based upon Buffon's "*Sanglier du Cap Verd*."

22. CERVUS PSEUDAXIS, Eyd. & Soul.

Hitherto I have called the Formosan Deer *Cervus taëvanus* (emended from *taiouanus*, Blyth). But as Mr. Swinhoe has now examined the typical specimens of *Cervus pseudaxis* in the Museum of the Jardin des Plantes, and convinced himself that they belong to the Formosan species‡ (as I have suggested would probably turn out to be the case, in my article on the Deer living in the Society's Gardens§), I think it right to revert to the earlier name, and have accordingly entered this species in the new edition of the List of Vertebrates as *Cervus pseudaxis*.

23. CERVUS ALFREDI, Sclater, P. Z. S. 1870, p. 381, pl. xxviii.

The fine male Deer to which I have recently given the name of *Cervus alfredi* is still living in good health in the Society's Gardens.

* Cf. Blanford, 'Geology and Zoology of Abyssinia,' p. 242.

† Säugeth. Suppl. v. p. 511.

‡ P. Z. S. 1870, p. 646.

§ Trans. Zool. Soc. vii. p. 345.

Its appearance did not alter during the winter ; and it is quite evident that, like the *Axis*, this species has no winter coat, but retains the same dress all the year round.

On the 13th of November last this animal shed his antlers, which I now exhibit. It will be seen that they are of a very simple cha-

Fig. 3.

Cast antler of *Cervus alfredi* (half the natural size).

racter, consisting of a short stout beam, which throws off an anterior snag about an inch and a half above the base, and then, slightly curving backwards and then forwards, separates into two small branches. Their total length is about six inches.

The new pair of antlers, now just grown, are hardly longer, and very similar in form, the snags, which are worn down in the present pair, being rather more developed. It would appear, therefore, that the animal is nearly adult ; but whether this be so or not, it is quite evident that *Cervus alfredi* differs materially from *Cervus axis*, in which, even in the second year, the antlers attain a very much greater length of beam.

24. CERVUS PUDU (Mol.). (Plate XVII.)

The male *Cervus pudu*, of which I gave a notice in the Society's 'Proceedings' for 1864 (p. 105), is still living in the Society's Gardens, and annually develops a diminutive pair of antlers. I exhibit those shed in 1869 and 1870, which are probably the

CERVUS PJJDU

J Smat lith





Fig. 4.



Cast antler of *Cervus pudu* (natural size).

Fig. 5.

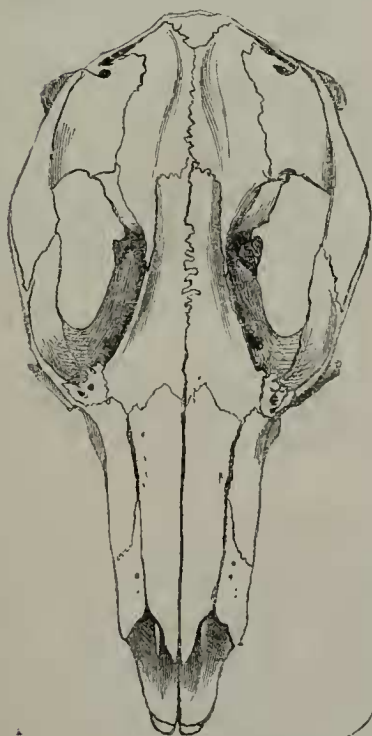


Fig. 6.



Fig. 5. Upper surface of skull of *Halmaturus erubescens* (half the natural size).
6. Lateral view of incisors of ditto (natural size).

smallest grown by any of the Deer, those of *Cervus rufinus* of the Andes of Ecuador and Columbia being, I believe, considerably larger. It will be observed that the antlers are perfectly simple, slightly curved, unbranched, and terminate in a point. The length of the antlers shed in November 1869, is 2·5 inches, that of those shed in December 1870, 2·8 inches.

25. *HALMATURUS ERUBESCENS*. (Figs. 5 & 6, p. 239.)

Macropus erubescens, Sclater, P. Z. S. 1870, p. 126, pl. x., et p. 669.

I regret to have to announce the recent loss of the two fine specimens of this new Kangaroo. One of these I now exhibit, that received July 20th, 1870. It agrees generally with that figured and described *l. c.*, but is of a nearly pure white on the throat and body beneath, and has the end of the tail black. The upper back is of a rich vinous colour, which is also continued over the shoulders, nape, and top of the head. The hands and feet are black. The measurements of this specimen are:—whole length, from nose to base of tail, 40 inches; tail 26 inches; length of ears nearly 5 inches; of tarsus to end of longest toe 11. The muffle of *M. erubescens* is quite naked; and the species therefore belongs strictly to the section *Halmaturus* of Mr. Waterhouse's arrangement.

The skull of the specimen (fig. 5, p. 239) shows that the animal was not yet adult, the third and fourth molars being not yet in their places. In general form it resembles most nearly that of *Macropus rufus*. The third incisor, as in that species, has but one shallow vertical groove, placed rather in front of the middle (see fig. 6, p. 239); but the whole tooth is wider and not so deep as is represented in Mr. Waterhouse's figure of the corresponding tooth in *Macropus rufus* (Mamm. ii. pl. 5. f. 3).

2. List of the Lizards belonging to the Family *Sepidæ*, with Notes on some of the Species. By Dr. A. GÜNTHER, F.R.S., F.Z.S.

[Received February 20, 1871.]

The family *Sepidæ*, as defined by Dr. Gray (Catal. Lizards, p. 121), forms a perfectly natural group of Lizards, peculiar to the African region, including the countries round the Mediterranean, Madeira, the Canaries, Madagascar, Mauritius, but not the Seychelle Islands. This family is also remarkable for exhibiting the most perfect transition from species with four well developed, though always feeble, limbs, to others in which only minute external rudiments of these organs are perceptible. Several additions having been made to this family during the last twenty years, I have thought it useful to compile a list of the species known at present, drawing also attention to those which are desiderata for the British-Museum collection.

SEPIDÆ (Gray).

I. SPHENOPS (Wagler).

1. *Sphenops sepoides* (Aud.). B.M.
Northern Africa, Syria (Senegal?).
2. *Sphenops meridionalis* (Gthr.). B.M.
Anisoterna sphenopsiforme (A. Dum.).
Gaboon, Senegal.

II. SCELOTES (Fitz.).

1. *Scelotes bipes* (L.). B.M.
Scelotes linnæi (Gravenhorst, in Nov. Ac. Cæs. Leop. xxiii. 1.
p. 376, tab. 43).
South Africa, northwards to Angola.
2. *Scelotes fierinensis* (Grandidier, Rev. et Mag. Zool. 1869, p. 340).
Madagascar.

III. SEPS.

α. HETEROMELES (D. & B.).

1. *Seps capensis*. B.M.
Gongylus capensis (Smith).
Western coast of South Africa.
2. *Seps mauritanicus*.
Heteromeles mauritanicus (Dum. & Bibr.).
Algeria.

β. GONGYLUS (Wagl.).

3. *Seps ocellatus* (Forsk.). B.M.
Mediterranean region, southwards to Abyssinia; Madeira.
4. *Seps viridanus*. B.M.
Gongylus viridanus (Gravenh.).
Teneriffe.
5. ? *Seps igneocaudatus*.
Gongylus igneocaudatus (Grandidier, Rev. et Mag. Zool.
1867, p. 234).
Madagascar.
6. ? *Seps polleni*.
Gongylus polleni (Grandidier, l. c. 1869, p. 340).
Madagascar.

γ. SEPS (Daud.).

7. *Seps tridactylus* (Laur.). B.M.
European and African parts of the Mediterranean region.
8. *Seps monodactylus* (Gthr.). B.M.
Palestine.

IV. THYRUS (Gray).

1. *Thyrus boyeri* (Desj.). B.M.
Mauritius, Round Island.

V. SEPSINA (Bocage).

1. *Sepsina angolensis* (Bocage, Journ. Sc. Math. &c. Lisb. 1866, p. 62).
Angola.
2. *Sepsina grammica* (Cope, Proc. Ac. Nat. Sc. Philad. 1868, p. 318).
South-west Africa.

VI. AMPHIGLOSSUS (D. & B.).

1. *Amphiglossus astrolabi* (D. & B.).
Madagascar.

These species may be arranged in the following series, according to the degree of development of the limbs :—

- a. *Four limbs well developed* : *Gongylus ocellatus*, ? *Gongylus igneocaudatus*, ? *Gongylus polleni*, *Thyrus boyerii*.
- β. *Four feeble limbs, but with 5 toes* : *Sphenops sepsoides*, *Seps capensis*, *Amphiglossus*.
- γ. *Four limbs, with less than 5 toes.*
Toes 4—4 : *Gongylus viridanus*.
Toes 2—4 : *Sphenops meridionalis*.
Toes 3—3 : *Sepsina*, *Seps tridactylus*.
Toes 2—3 : *Seps mauritanicus*.
- δ. *Four rudiments of limbs, without toes* : *Seps monodactylus*.
- e. *Only two two-toed hind limbs* : *Scelotes*.

SPHENOPS MERIDIONALIS.

I am obliged to propose this name for "*Anisoterma sphenopsiforme*" (A. Dum. Arch. Mus. x. p. 180, pl. 15. fig. 3), as the genus is identical with *Sphenops*, so that the original specific name cannot be retained. *Sphenops sepsoides* has 5—5 very small toes; in *S. meridionalis* the toes are still more rudimentary, and reduced in number to 2—4. Otherwise the resemblance between the two forms is so great that one would have been justified in describing them as varieties of the same species, if no other distinctive character could have been discovered. However, I find that, in the northern form, the external cleft of the mouth is continued to the ear, and has a serrated margin. In *S. meridionalis* there is a distinct space between the angle of the mouth and the ear, and there is no serrature of the margin of the mouth.

The typical specimen is said to have been received from the Gaboon. The British Museum obtained by purchase two specimens from M. Parzudaki, who stated that he had received them from Senegal.

SEPS (*GONGYLUS*) *CAPENSIS*, Smith, Zool. S. Afr. Append. p. 10.

Sir A. Smith has presented to the British Museum two small lizards contained in a bottle, which is labelled in his own handwriting "*Gongylus capensis*." In his description (*l. c.*) he distinctly refers to a single specimen, two inches long, without the tail, which was lost. One of our two specimens is, indeed, of that size, and without

tail; and the presence of the second specimen might be accounted for by supposing that Sir A. Smith found it among his extensive collection, *after* the publication of the Appendix, and placed it in the same bottle with the typical example.

The description itself answers well enough to our examples, except in two points. The innermost toe is described as being rather longer than the second; and a minute circular ear-opening is mentioned. Now in those examples (which have considerably suffered during the long period of their preservation) no trace of an external ear-opening can be found; and I should have described the second toe as rather longer than the innermost. Nevertheless, taking all the circumstances into consideration, I am inclined to regard the tailless example as the type of Sir A. Smith's description; and I may add that the body is surrounded by twenty-three longitudinal series of scales, and that there are seventy scales in a longitudinal series between the fore limb and vent.

This species connects *Scelotes* with *Seps*. It may be referred to the subgenus *Heteromeles*, on account of the indistinctness of the ear-opening.

SEPS (GONGYLUS) VIRIDANUS, Gravenhorst, Act. Nov. Ac. Cæs. Leopold. xxiii. p. 348.

Head as in *Gongylus ocellatus*. Limbs much more feebly developed, with only four toes; the anterior shorter than the head, the posterior shorter than the distance of the fore-limb from the extremity of the snout. Body surrounded by twenty-four longitudinal series of scales; there are seventy-five scales in a longitudinal series between the fore limbs and the vent. Ear a small round opening. Upper parts brown, with an olive-coloured band, two scales broad, on each side of the back. The brown median part on the back with small white black-edged ocelli, arranged in two longitudinal series. The ocelli are continued on the tail, but not the bands. Lower parts white.

	millims.
Total length without tail (which is injured, and partly reproduced in all the specimens)	83
Length of the head (to the ear-opening)	9
Length of the fore limb	7
Length of the hind limb	15
Length of the fourth hind toe	5

Two specimens of this Lizard, said to have been brought from North-western Africa, were received from the Zoological Society*. Fortunately the British Museum possesses a third specimen, from which more accurate information with regard to the habitat is obtained. It was brought by R. M'Andrew, Esq., in the year 1852, from Orotava, on the island of Teneriffe, which locality is mentioned also by Gravenhorst.

This species is instructive in several respects. It is one of the numerous instances which prove that modifications of a rudimentary

* [They were purchased by the Society from a dealer along with specimens of other North-African Reptiles, June 15th, 1870 (see P. Z. S. 1870, p. 900).—P. L. S.]

organ cannot be used as generic characters. Thus, whenever in a group of reptiles the limbs are in a more or less rudimentary condition, the number of toes indicates only specific distinctness, and sometimes it is evidently subject to even individual variation. Further, the genera *Seps*, *Gongylus*, and *Heteromeles* had been distinguished only by the differences in the number of toes of their rudimentary limbs, as we cannot take into account the more or less complete scaly covering of the external ear-opening, which is sometimes very distinct, sometimes rather indistinct, and sometimes entirely hidden by an overlapping scale. At present, we know the following modifications intermediate between the toeless *Seps monodactylus* and the five-toed *Gongylus ocellatus* :—

	Fore toes.	Hind toes.
<i>Gongylus ocellatus</i>	5	5 (well developed).
<i>Gongylus capensis</i>	5	5 (feeble).
<i>Gongylus viridanus</i>	4	4
<i>Seps tridactylus</i>	3	3
<i>Heteromeles mauritanicus</i> ..	2	3
<i>Seps monodactylus</i>	0	0

Consequently I am inclined to unite the species mentioned into one genus, for which the name *Seps* may be retained.

Several instances have been made known of animals restricted in their habitat to islands, and having the organs of locomotion in a much less developed state than nearly allied species of continental faunas. Speculation has seized upon these instances to connect this peculiarity of structure with the fact of insulation ; and the short-limbed *Gongylus viridanus* of Teneriffe, when compared with the continental five-toed *Gongylus ocellatus*, would appear to offer another instance leading to the same way of reasoning. But then we find that *Gongylus ocellatus* is also an inhabitant of Malta, Madeira, and other small islands, without showing signs of imperfectly developed limbs, and, again, that *Seps monodactylus* and *Heteromeles* are not less continental species than *Seps tridactylus*, as also that the five-toed *Sphenops sepoides* and the short-limbed *Sphenops meridionalis* are widely spread over large districts of the same continent.

3. Descriptions of some new Insects collected by Dr. Anderson during the Expedition to Yunan. By FREDERIC MOORE, FRANCIS WALKER, and FREDERICK SMITH.

[Received February 21, 1871.]

(Plate XVIII.)

Order LEPIDOPTERA.

HETEROCERA.

1. SYNTOMIS ANDERSONI, Moore, n. sp. (Plate XVIII. fig. 1.)

Male and female. Wings hyaline, veins bluish black ; body black, with orange-yellow bands : fore wing with the costa and exterior and

posterior margins black; space between the submedian vein and posterior margin pale yellow; a broad transverse discocellular black quadrate spot, which is recurved outwards: hind wing with the anterior border pale yellow, and having a small discoidal black spot; apex and exterior margin black; posterior margin tinged with yellow. Spot on front of head, coxæ, legs above, and band on each segment of abdomen beneath white. Collar round thorax, tegulæ, spots on thorax, and band on each segment of abdomen above orange-yellow; tip of abdomen in male purplish black, in female yellowish grey. Proboscis, palpi, antennæ, and legs beneath black, the antennæ tipped with white.

Expanse, ♂ $1\frac{4}{10}$, ♀ $1\frac{3}{4}$ inch.

2. *SYNTOMIS SLADENI*, Moore, n. sp. (Plate XVIII. fig. 5.)

Female. Wings hyaline, veins jet-black; body black, with orange-yellow bands: fore wing with a jet-black costal border of exterior and posterior margins, a narrow longitudinal streak extending from the discocellular vein halfway across the disk; veins at the base of wing tinged with orange-yellow: hind wing with a narrow jet-black border extending all round, with a short curved streak extending upward from middle of the exterior margin. Proboscis, palpi, antennæ, and eyes black. Legs black beneath, whitish above. Spot on front of head, collar round thorax, streak on tegulæ, spots on thorax above and beneath, streak on coxæ, and band on each segment of abdomen deep orange-yellow.

Expanse $1\frac{4}{10}$ inch.

3. *SYNTOMIS GROTEI*, Moore, n. sp. (Plate XVIII. fig. 4.)

Female. Wings hyaline, veins brownish black; body black, with orange-yellow bands: fore wing with the base of costal and posterior margins orange-yellow; costa and posterior margins anteriorly and exterior margin black; a small space within base of discoidal cell, a streak beneath extending to the submedian vein, a streak anteriorly on median vein, space between the discoidal veinlets except a small rounded hyaline exterior spot, and a short space upwards from exterior margin between the second and third median veinlets brownish black: hind wing with a brownish-black border tinged with orange-yellow on anterior margin; a short black streak extending upward from exterior margin. Proboscis, palpi, and antennæ black. Front of head, collar, streak on tegulæ, spots on thorax, coxæ, and band on each segment of abdomen orange-yellow. Legs yellowish white above, brown beneath.

Expanse $1\frac{1}{2}$ inch.

4. *SYNTOMIS ATKINSONI*, Moore, n. sp. (Plate XVIII. fig. 2.)

Male and female. Bluish black, body with a slight purplish tinge: fore wing with seven transparent spots, the first near the base, small, rounded, the second occupying the anterior portion of the cell, the third below the cell and extending obliquely to near the posterior angle, the fourth and fifth divided by the first or upper median

veinlet, the sixth and seventh divided by the lower subcostal veinlet, the latter spot being very small: hind wing with a subbasal transparent spot extending to the extreme abdominal margin, where it is tinged with yellow. Head in front and coxæ yellowish white; spot at base of abdomen above, and a band extending round the abdomen orange-yellow; anal tuft in female yellowish white. Proboscis, palpi, antennæ, and legs black; tarsi whitish; antennæ tipped with white.

Expanse, ♂ $1\frac{1}{10}$, ♀ $1\frac{1}{4}$ inch.

5. *SYNTOMIS FYTCHEI*, Moore, n. sp. (Plate XVIII. fig. 3.)

Male. Brownish black: fore wing transparent, veins black; costa and posterior margin with narrow black border; space between discoidal veinlets, the apex of wing, and exterior margin black, extending upward on the latter near the angle: hind wing with anterior margin and apex narrowly bordered with black. Front of the head white; collar round thorax, coxæ, and a basal and median abdominal band orange-yellow. Proboscis, palpi, antennæ, and legs black; tip of antennæ and tarsi whitish.

Expanse $1\frac{1}{10}$ inch.

Order ORTHOPTERA.

Fam. ACRIDIDÆ.

1. *OPOMALA TENEBROSA*, Walker, n. sp.

Female. Piceous or ferruginous, slender, slightly compressed. Head and prothorax with a very slight middle keel, and with a few very slight longitudinal ridges. Tip of the vertex flat, short-conical; front tawny, oblique, speckled with black, with four well-defined diverging keels; inner keels united near the tip of the vertex. Antennæ flat, lanceolate, about twice the length of the head. Prothorax with a very slight keel on each side; fore border hardly rounded; hind border slightly rounded. Hind femora as long as the abdomen. Hind tibiæ a little shorter than the hind femora; spines stout, of equal size. Fore wings with irregular and very minute areolets; those towards the tips larger, elongated, and regular. Hind wings cinereous hyaline, blackish at the tips; veins black, pale green or pale yellow at the base and along the interior border.

Length of the body 14 lines; expansion of the fore wings 24 lines.

2. *CYRTACANTHACRIS PUNCTIPENNIS*, Walker, n. sp.

Male. Tawny, slender, testaceous beneath. Head short; tip of the vertex depressed, nearly round; front punctured, slightly oblique, with four well-defined diverging keels; inner keels ending in the flat ridge which extends from the tip of the vertex. Antennæ slender, a little longer than the head and the prothorax together. Prothorax with a very slight keel, which is most apparent near the hind border; four transverse impressed lines, the first, as usual, widely interrupted in the middle; fore border hardly curved; hind border slightly elongated and angular. Prosternal spine thick, oblique, rounded at

the tip, approaching the mesosternum. Abdomen testaceous, with a piceous stripe which extends from the base to beyond half the length. Fore wings cinereous towards the tips, with numerous blackish points, which mostly form very irregular bands; a row of subcostal black more determinate points. Hind wings cinereous, veins black.

Length of the body 15 lines; expansion of the fore wings 30 lines.

The prosternal spine is shorter, stouter, and more obtuse than that of *C. rubiginosa*, which this species closely resembles. The speckled fore wings distinguish it from *C. spissa*.

3. MASTAX INNOTATA, Walker, n. sp.

Male. Ferruginous, slender. Head elongate, obliquely but abruptly ascending; tip of the vertex conical, prominent, slightly bilobed; front long, oblique, with four well-defined keels; inner keels converging towards the face; outer keels diverging towards the face; clypeus and fore part of the face tawny. Antennæ black, short, slender, tawny towards the base. Eyes elliptical, prominent. Prothorax short, sellate, widening hindward, with a slight keel; a blackish mark on each side in front of the transverse impressed line. Hind femora as long as the abdomen. Hind tibiæ slender, piceous, a little longer than the hind femora; spines small. Fore wings narrow, cinereous, with two pellucid marks near the tips, the mark on the hind border larger and more remote from the tip than the other, which is costal. Hind wings cinereous hyaline, with a blackish costal line; veins black.

Length of the body 10 lines; expansion of the fore wings 20 lines.

4. OXYA DIMINUTA, Walker, n. sp.

Male. Tawny, slender. Head and prothorax with two ferruginous stripes, which do not extend beyond the fourth transverse impressed line of the prothorax. Head slightly elongate; vertex with two keels between the eyes; tip depressed, transverse, subrhomboidal; front hardly oblique, with four strongly marked keels; inner keels slightly curved towards the vertex, parallel towards the face; outer keels diverging towards the face. Antennæ slender, piceous towards the tips. Prothorax with a keel, which is hardly apparent except towards the hind border; the latter rounded. Prosternal spine long, acute, rather slender. Spines of the tibiæ with black tips. Wings half developed. Hind wings cinereous hyaline, veins black.

Length of the body 10 lines.

5. CALOPTINUS INCOMPTUS, Walker, n. sp.

Male. Tawny, testaceous beneath. Head short; vertex with two slender furrows between the eyes; tip flat, subrhomboidal; front in structure like that of *C. inamænus*. Antennæ slender. Prothorax with a slight keel and with the usual transverse impressed lines; hind border elongated, slightly angular. Prosternal spine stout, long, slightly acute. Hind legs testaceous; spines of the tibiæ with black tips. Fore wings cinereous, tawny towards the base, with

some irregular and indistinct pale brownish bands formed by clouded veins. Hind wings pellucid, cinereous about the tips; a tawny costal streak; veins pale yellow, black towards the tips.

Length of the body 10 lines; expansion of the fore wings 20 lines.

Very closely allied to *C. inamœnus*. The keel of the prothorax is more strongly defined than that of *C. signatipes*.

6. *CALOPTINUS INAMÆNUS*, Walker, n. sp.

Male. Piceous. Head short; vertex with two slender furrows between the eyes; tip flat, subrhomboidal; front punctured, erect, with four distinct keels; inner keels slightly diverging from the vertex to the face; outer keels nearly parallel. Antennæ tawny, as long as the head and the prothorax together. Prothorax with a slight keel, with the usual four transverse impressed lines, and with two colli on each side; fore border hardly rounded; hind border slightly elongated and angular. Pectus and abdomen testaceous, the latter piceous above towards the base. Prosternal spine long and stout, rounded at the tip. Hind femora with three black spots on the upperside, and with a black stripe beneath. Hind tibiæ red, their spines with black tips. Fore wings cinereous, brownish towards the tips, with several indistinct and irregular bands formed by brownish-clouded veins; costa rounded near the base. Hind wings cinereous; a ferruginous costal streak; veins black, greenish white at the base and along the interior border.

Length of the body 12 lines; expansion of the fore wings 22 lines.

The vertex between the eyes is narrower than that of *C. brunneus*.

Order HYMENOPTERA.

1. *VESPA BELLONA*, Smith, n. sp. (Plate XVIII. fig. 6.)

Female. Head, thorax, and legs pale yellowish brown; the eyes dark fuscous; the teeth and inner margin of the mandibles black; the flagellum of the antennæ fuscous above towards the apex; a fuscous spot in front of the intermediate and posterior coxæ; the prothorax with a black transverse spot above; the wings fuscohyaline, darkest at the anterior margin of the superior pair and towards their base. Abdomen black, with a narrow yellow marginal band on each segment at its apex; the apical segment entirely black; the extreme base of the abdomen with indistinct yellowish stains. Length 1 inch 6 lines.

Worker. Closely resembles the female; but in the single example received the abdomen has only a yellow margin to the basal segment; all the tarsi are fuscous, with the claw-joint yellowish; the flagellum is not fuscous above. Length 10 lines.

This species is nearly allied to *Vespa magnifica*. The head of the female is widened towards the thorax, as in that species, and is deeply emarginate behind; the clypeus and mandibles are not so strongly punctured, and the apical segment of the abdomen is not yellow as in *V. magnifica*. *Vespa basalis* resembles this species, but

